

```

*          6:30am - 9:00pm Monday through Friday          *
*          7:30am - 5:00pm Saturday, Sunday, Holidays      *
*
*          APS is unavailable Thanksgiving Day, Christmas Day,
*          and New Year's Day.
*
* * * * *
FILE 'USPAT' ENTERED AT 14:05:14 ON 09 APR 1999

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* * * * *
*          W E L C O M E   T O   T H E
*          U . S .   P A T E N T   T E X T   F I L E
* * * * *

```

=> s magneto-optical

```

          10279 MAGNETO
          285854 OPTICAL
L1          4639 MAGNETO-OPTICAL
              (MAGNETO(W) OPTICAL)

```

=> s l1 and ferromagnetic

```

          21569 FERROMAGNETIC
L2          256 L1 AND FERROMAGNETIC

```

=> s width and thickness

```

          549072 WIDTH
          580002 THICKNESS
L3          233394 WIDTH AND THICKNESS

```

=> s l3 and l2

```

L4          81 L3 AND L2

```

=> s spacing and l4

```

          275590 SPACING
L5          33 SPACING AND L4

```

=> d pno 1-33

1.	5,886,959	[IMAGE AVAILABLE]
2.	5,793,711	[IMAGE AVAILABLE]
3.	5,736,856	[IMAGE AVAILABLE]
4.	5,660,929	[IMAGE AVAILABLE]
5.	5,631,559	[IMAGE AVAILABLE]
6.	5,631,093	[IMAGE AVAILABLE]
7.	5,612,131	[IMAGE AVAILABLE]
8.	5,602,819	[IMAGE AVAILABLE]
9.	5,577,016	[IMAGE AVAILABLE]
10.	5,567,523	[IMAGE AVAILABLE]
11.	5,528,564	[IMAGE AVAILABLE]
12.	5,492,572	[IMAGE AVAILABLE]
13.	5,490,910	[IMAGE AVAILABLE]
14.	5,486,857	[IMAGE AVAILABLE]
15.	5,463,609	[IMAGE AVAILABLE]
16.	5,457,298	[IMAGE AVAILABLE]
17.	5,412,626	[IMAGE AVAILABLE]
18.	5,283,130	[IMAGE AVAILABLE]
19.	5,262,800	[IMAGE AVAILABLE]
20.	5,232,569	[IMAGE AVAILABLE]
21.	5,150,351	[IMAGE AVAILABLE]
22.	5,109,373	[IMAGE AVAILABLE]

23.	5,103,351	[IMAGE AVAILABLE]
24.	5,091,021	[IMAGE AVAILABLE]
25.	5,089,060	[IMAGE AVAILABLE]
26.	4,661,875	[IMAGE AVAILABLE]
27.	4,442,414	[IMAGE AVAILABLE]
28.	4,378,951	[IMAGE AVAILABLE]
29.	3,831,156	[IMAGE AVAILABLE]
30.	3,806,903	[IMAGE AVAILABLE]
31.	3,752,563	[IMAGE AVAILABLE]
32.	3,643,233	[IMAGE AVAILABLE]
33.	3,582,570	[IMAGE AVAILABLE]

=> d his

(FILE 'USPAT' ENTERED AT 14:05:14 ON 09 APR 1999)

L1	4639 S MAGNETO-OPTICAL
L2	256 S L1 AND FERROMAGNETIC
L3	233394 S WIDTH AND THICKNESS
L4	81 S L3 AND L2
L5	33 S SPACING AND L4

=> s l4 and 369/clas

	26128 369/CLAS
L6	36 L4 AND 369/CLAS

=> d pno 1-36

1.	5,886,959	[IMAGE AVAILABLE]
2.	5,862,105	[IMAGE AVAILABLE]
3.	5,793,711	[IMAGE AVAILABLE]
4.	5,783,320	[IMAGE AVAILABLE]
5.	5,679,455	[IMAGE AVAILABLE]
6.	5,660,929	[IMAGE AVAILABLE]
7.	5,638,344	[IMAGE AVAILABLE]
8.	5,637,411	[IMAGE AVAILABLE]
9.	5,621,706	[IMAGE AVAILABLE]
10.	5,602,819	[IMAGE AVAILABLE]
11.	RE 35,396	[IMAGE AVAILABLE]
12.	5,577,016	[IMAGE AVAILABLE]
13.	5,572,490	[IMAGE AVAILABLE]
14.	5,529,854	[IMAGE AVAILABLE]
15.	5,528,564	[IMAGE AVAILABLE]
16.	5,512,366	[IMAGE AVAILABLE]
17.	5,463,609	[IMAGE AVAILABLE]
18.	5,430,695	[IMAGE AVAILABLE]
19.	5,412,626	[IMAGE AVAILABLE]
20.	5,339,298	[IMAGE AVAILABLE]
21.	5,335,213	[IMAGE AVAILABLE]
22.	5,325,345	[IMAGE AVAILABLE]
23.	5,325,344	[IMAGE AVAILABLE]
24.	5,241,520	[IMAGE AVAILABLE]
25.	5,218,581	[IMAGE AVAILABLE]
26.	5,172,364	[IMAGE AVAILABLE]
27.	5,150,351	[IMAGE AVAILABLE]
28.	5,112,701	[IMAGE AVAILABLE]
29.	5,109,373	[IMAGE AVAILABLE]
30.	5,018,119	[IMAGE AVAILABLE]
31.	5,005,093	[IMAGE AVAILABLE]
32.	4,992,896	[IMAGE AVAILABLE]
33.	4,922,462	[IMAGE AVAILABLE]
34.	4,899,238	[IMAGE AVAILABLE]
35.	4,686,661	[IMAGE AVAILABLE]
36.	4,661,875	[IMAGE AVAILABLE]

=> File JPoabs

FILE 'JPOABS' ENTERED AT 14:23:01 ON 09 APR 1999

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* * * * *
*   J A P A N E S E   P A T E N T   A B S T R A C T S   *
*
* DATA IS LOADED THROUGH DECEMBER 24, 1996, FOR THE JAPANESE *
* PATENT OFFICE ABSTRACT (JPOABS) FILE. NEW RECORDS ARE NOT *
* BEING ADDED. PLEASE USE THE GPI-JPO FILE (JPO) WHICH IS   *
* CURRENT THROUGH DECEMBER 31, 1998 (SEE BELOW).            *
* * * * *
*   GLOBAL PATENT INFORMATION-JAPANESE PATENT OFFICE FILE   *
*                               (GPI-JPO FILE)                *
*
* THE FILE IS CURRENT THROUGH DECEMBER 31, 1998.            *
* * * * *
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IRD CNOABS

=> d his

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(FILE 'USPAT' ENTERED AT 14:05:14 ON 09 APR 1999)
L1      4639 S MAGNETO-OPTICAL
L2      256 S L1 AND FERROMAGNETIC
L3      233394 S WIDTH AND THICKNESS
L4      81 S L3 AND L2
L5      33 S SPACING AND L4
L6      36 S L4 AND 369/CLAS
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FILE 'JPOABS' ENTERED AT 14:23:01 ON 09 APR 1999

=> s 12

```
10554 MAGNETO
220279 OPTICAL
7830 MAGNETO-OPTICAL
      (MAGNETO(W)OPTICAL)
11345 FERROMAGNETIC
L7      74 L1 AND FERROMAGNETIC
```

=> s 13

```
143731 WIDTH
184796 THICKNESS
L8      16863 WIDTH AND THICKNESS
```

=> s 18 and 17

L9 1 L8 AND L7

=> d cit,ab

1. 05-159389, Jun. 25, 1993, **MAGNETO-OPTICAL** RECORDING MEDIUM;
YASUO SHIBATA, et al., G11B 11/10

05-159389

L9: 1 of 1

ABSTRACT:

PURPOSE: To facilitate the selection of the constituting materials of magnetic layers by providing horizontally magnetized films and specific adjusting thin film layers between the 4th, 3rd, and 2nd magnetic layers and providing the same adjusting thin film layer between the 2nd and 1st magnetic layers.

CONSTITUTION: **Ferromagnetic** metallic atom layer for the horizontally magnetized films and the thin layers contg., for example, one of Co, Fe and Ni and have 1 to 5.ANG. **thickness** are provided between the 4th, 3rd, and 2nd magnetic layers and this thin layer is provided between the 2nd and 1st magnetic layers as well. The magnetic moments between the heavy rare earth metal elements and transition metals in the magnetic layers on both sides are adequately bonded by this thin layer. Then, the magnetic layers functioning as the perpendicularly magnetized films on both sides of the horizontally magnetized layers can be arbitrarily set in the coercive forces of the respective magnetic layers if only the cross relation of the Curie temp. is determined as prescribed and, therefore the **magneto-optical** disk having prescribed characteristics is easily obtd. The magnetical exchange interaction that the 3rd and 4th magnetic layers act on the 2nd magnetic layer can be adjusted by the **ferromagnetic** metallic atom layers as the horizontal' magnetized films. The **width** of the selection of the constituting materials is widened according to this constitution.